

CLAIMS:



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| Related Pending Application |
| Related Case Serial No: 966,371 RECEIVED |
| Related Case Filing Date: 09-28-01 MAY 23 2002 |

1. A thermoelectric module comprising:

a case,

P-type and N-type semiconductor tips having an exogeric side and an endogeric side,
said P-type and N-type semiconductor tips being positioned in said case,

an insulating base plate for the exoergic side positioned in said case,

an insulating base plate for the endoergic side positioned in said case,

a first soldering layer which joins the insulating base plate for the exoergic side to
said case via first soldering material, and

second soldering layers which respectively join the P-type and N-type semiconductor
tips to the insulating base plate for the exoenergic side and the insulating base plate for the
endoergic side using a second soldering material,

wherein a melting point temperature of first soldering material for the first soldering
layer is higher than a melting point temperature of the second material for the second
soldering layers.

2. A process for producing a thermoelectric module including P-type and N-type
semiconductor tips having an exogeric side and an endogeric side, comprising:

a first step of joining a case to an insulating base plate via a first soldering layer of a
first soldering material,

a second step of joining an insulating base plate for the endoergic side to the P-type
and N-type semiconductor tips via a second soldering layer of a second soldering material,
and

third step of joining an insulating base plate for the exoergic side to the P-type and N-type
semiconductor tips via a second soldering layer of the second soldering material,

wherein a melting point temperature of first soldering material for the first soldering layer is higher than the melting point temperature of second material for the second soldering layers.

3. A thermoelectric module according to Claim 1:

wherein first soldering material is selected from at least one from the group consisting of 80Au20Sn, 80Au20Sb, 85Au12Ge, 60Au12Ge, 60Au20Ag20Sn, 75Au25Sb, 60Zn20Ge20Al, 96.4Au3.6S1 and 95An5Al.

4. Process for producing thermoelectric module according to Claim 2:

wherein first soldering material is selected from at least one from the group consisting of 80Au20Sn, 80Au20Sb, 85Au12Ge, 60Au12Ge, 60Au20Ag20Sn, 75Au25Sb, 60Zn20Ge20Al, 96.4Au3.6S1 and 95An5Al.

ABSTRACT OF THE DISCLOSURE

A thermoelectric module includes a case, a insulating base plate for a exoergic side, a insulating base plate for endoergic side, a first soldering layer which joins the insulating base plate for the exoergic side to the case via a first soldering material, and a second soldering layer which joins P-type and N-type semiconductor tips to the insulating base plate for an exoenergetic side and a insulating base plate for an endoergic side, using second soldering material. The melting point temperature of the first soldering material for the first soldering layer is higher than the melting point temperature of the second material for the second soldering layer.

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Fig. 1

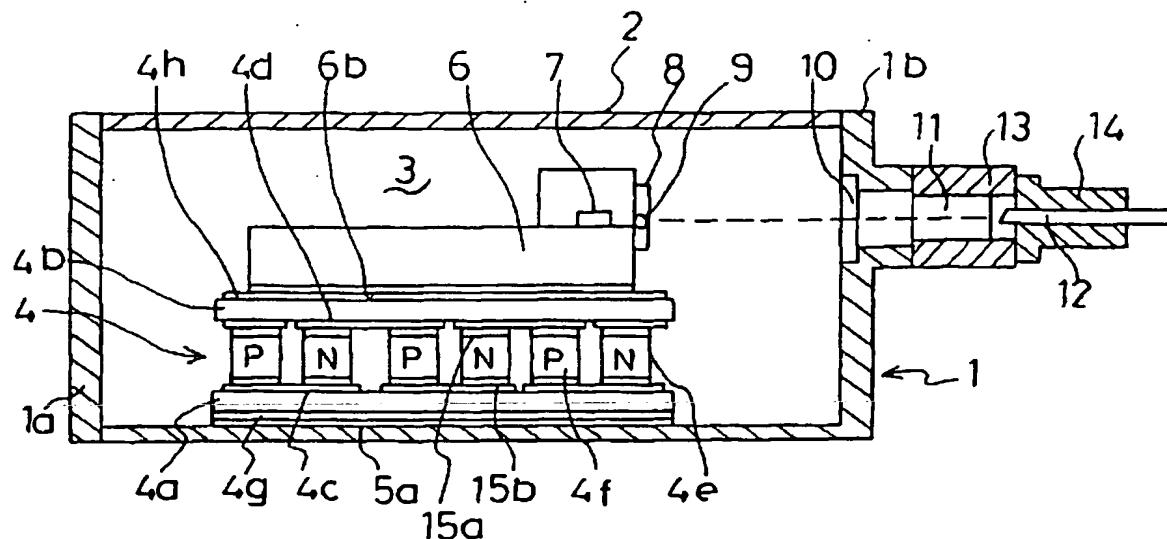


Fig. 2

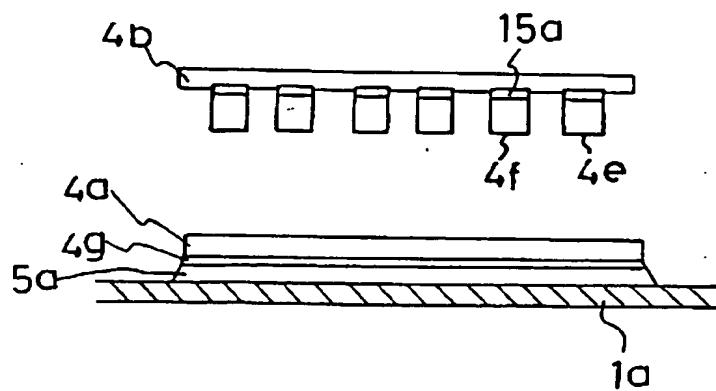


Fig. 3

